CITY OF CHULA VISTA
Requirements for Solid State (LED) Lighting

This specification is for LED roadway lighting luminaires in the following configurations: Full-cutoff type at a mounting height of 34 ft.

GENERAL LUMINAIRE REQUIREMENTS

Each luminaire shall consist of an assembly that utilizes light emitting diodes (LEDs) as the light source.

The LED lamps used in the luminaire shall be individually capable of producing white light, and shall be the ultra-bright or hi-flux type rated for a minimum of 100,000 hours of continuous operation.

Luminaires shall be rated for a minimum operational life of 50,000 hours (10 years) of operations at an average operating time of 11.5 hour per night.

The individual LEDs shall be connected such that a catastrophic loss or the failure of one LED will not result in the loss of the entire luminaire.

The luminaires shall be designed to operate at an average nighttime temperature of 70°. The operating temperature range shall be -40°F to +130°F.

Smart System Compatible “Adaptive Lighting”: 0-100% dimmable, diagnostic and energy usage metering capability, Solar Power Integral.

ELECTRICAL REQUIREMENTS

Maximum power consumption for the luminaire is 150 Watts.

The luminaire shall operate over a voltage range from 95 VAC to 285 VAC. Fluctuations of line voltage shall have no visible effect on the luminous output.

Input Voltage Range (VAC): 120/208/240/277 VAC.

Power Factor: Power supply should have a minimum Power Factor of .90.

Max Amperage at LED: 525mA

Total harmonic distortion shall not exceed 20%.

Surge suppression: The luminaire on-board circuitry shall include surge suppression devices (SPD) to withstand high repetition noise transients as a result of utility line switching, lighting strikes and other interference. SPD shall conform to UL 1449 or UL 1283, depending of the components used in the design.

Noise: Luminaires must have a Class A sound rating.

Interference: Power supplies shall meet FCC 47 CFR Part 15/18.

ROADWAY APPLICATION (PHOTOMETRIC) REQUIREMENTS

All parameters shall be measured or corrected for the mounting height of 34 ft.

Minimum initial lumens shall be 0.22 foot-candles.

Minimum maintained illuminance shall be 0.15 foot-candles.

The minimum boundary of the illuminated area shall be as shown in figure 1.

Efficacy: Minimum luminaire efficacy = 60 lm/W. Minimum lamp efficacy = 100 lm/W.

Correlated Color Temperature (CCT): 4000 - 6500K

Color Rendering Index (CRI): Luminaires shall have a minimum CRI of 70

The luminaire shall conform to the IESNA definition of "full cut-off" or better.

Light distribution should be in accordance with IES type lll lighting distribution.

Dark Sky Certified: 0% light above the 90° horizontal.

COOLING SYSTEM

Thermal management of the heat generated by the LEDs shall be of sufficient capacity to assure proper operation of the luminaire over the expected useful life (10 years).

Documentation shall be required that demonstrates the LED manufacturers maximum junction temperature for the designed life (10 years) shall not be exceeded.

Thermal management shall be passive by design and shall consist of a heat sink with no fans, pumps or liquids.

PHYSICAL/MECHANICAL REQUIREMENTS

The luminaire shall be a single, self-contained device, not requiring on-site assembly for installation. The power supply for the luminaire shall be integral to the unit.

Dimensions (Approx): 30" long by 16" wide by 6" tall.

Weight: Luminaire shall not weigh more than thirty-five (35) pounds.

Housing shall be primarily constructed of metal. Finish shall be gray in color, powder coated and rust resistant. Driver must be accessible without tools. All screws shall be stainless steel. Captive screws are needed on any components that require

maintenance after installation. No parts shall be constructed of polycarbonate unless it is UV stabilized (lens discoloration shall be considered a failure under warranty).

Mounting Arm Connection: Luminaires shall mount on min 1-5/8" OD to max 2-3/8" OD horizontal tenon with no more than four (4) 9/16" hex bolts and two-piece clamp. Shall provide option for post-top mount.

The assembly and manufacturing process for the LED luminaire shall be designed to assure all internal components are adequately supported to withstand mechanical shock and vibration from high winds and other sources.

The housing shall be designed to prevent the build up of water on its top. Exposed heat sink fins shall be oriented so that water can freely run off the luminaire, and carry dust and debris away from the unit.

IP Ingress Protection Rating: Optical assembly shall be IP-66 minimum. The power supply enclosure shall be IP-65 minimum.

Power Door: When the components are mounted on a down-opening door, the door shall be hinged and secured to the luminaire housing separately from the refractor or flat lens frame. The door shall be secured to the housing in a manner to prevent it from accidentally opening.

Each luminaire shall have a 3-prong (twist-lock) ANSI C136.10 photocell receptacle.

Field wires connected to the luminaire shall terminate on a barrier type terminal block secured to the housing. The terminal screws shall be captive and equipped with wire grips for conductors up to #6 AWG. Each terminal position shall be clearly identified.

The circuit board and power supply shall be contained inside the luminaire. Circuit boards shall conform to Chapter 1, Section 6 of the "Transportation Electrical Equipment Specifications" (TEES).

Powder coating of the housing shall conform to the requirements of the Caltrans Standard Specification and the Caltrans Standard Special Provisions.

Environmental Impact: Must be free of lead and mercury. Must be modular in design and recyclable.

LUMINAIRE IDENTIFICATION

Each luminaire shall have the manufacturer's name, trademark, model number, serial number, date of manufacture (month and year), and lot number as identification permanently marked inside each unit and the outside of each packaging box.

The following operating characteristics shall be permanently marked inside each unit: rated voltage and rated power in Watts and Volt-Ampere.

QUALITY ASSURANCE

The luminaires shall be manufactured in accordance with a manufacturer quality assurance (QA) program. The QA program shall include two types of quality assurance: (1) design quality assurance and (2) production quality assurance. The production quality assurance shall include statistically controlled routine tests to ensure minimum performance levels of the modules built to meet this specification, and a documented process of how problems are to be resolved.

WARRANTY

Manufacturers shall provide a written warranty issued by the factory located in the NAFTA country of module origin with the following minimum provisions.

Luminaires shall, at the city's option, be repaired or replaced if the luminaire fails to function as intended due to workmanship or material defects within the first 60 months from the date of delivery.

Upon request, the manufacturer shall provide written documentation of its ability to satisfy a worst-case, catastrophic warranty claim. A current corporate annual report duly-certified by an independent auditing firm, containing financial statements illustrating sufficient cash-on-hand and net worth to satisfy a worst-case, catastrophic warranty claim is an example of suitable documentation.

The documentation shall clearly disclose the country in which the factory of module origin is located, the name of the company or organization that owns the factory including all of its parent companies and/or organizations, and their respective country of corporate citizenship.

For firms with corporate citizenship in the United States of less than seven years, the documentation shall clearly disclose the process by which the end-users/owners of the luminaires will be able to obtain worst-case, catastrophic warranty service in the event of bankruptcy or cessation-of-operations by the firm supplying the luminaires within North America, or in the event of bankruptcy or cessation-of-operations by the owner of the factory of origin.

MEASUREMENT/PERFORMANCE/SAFETY STANDARDS

ANSI C78.377.2008: Specifications for the Chromaticity of Solid State Lighting Products.

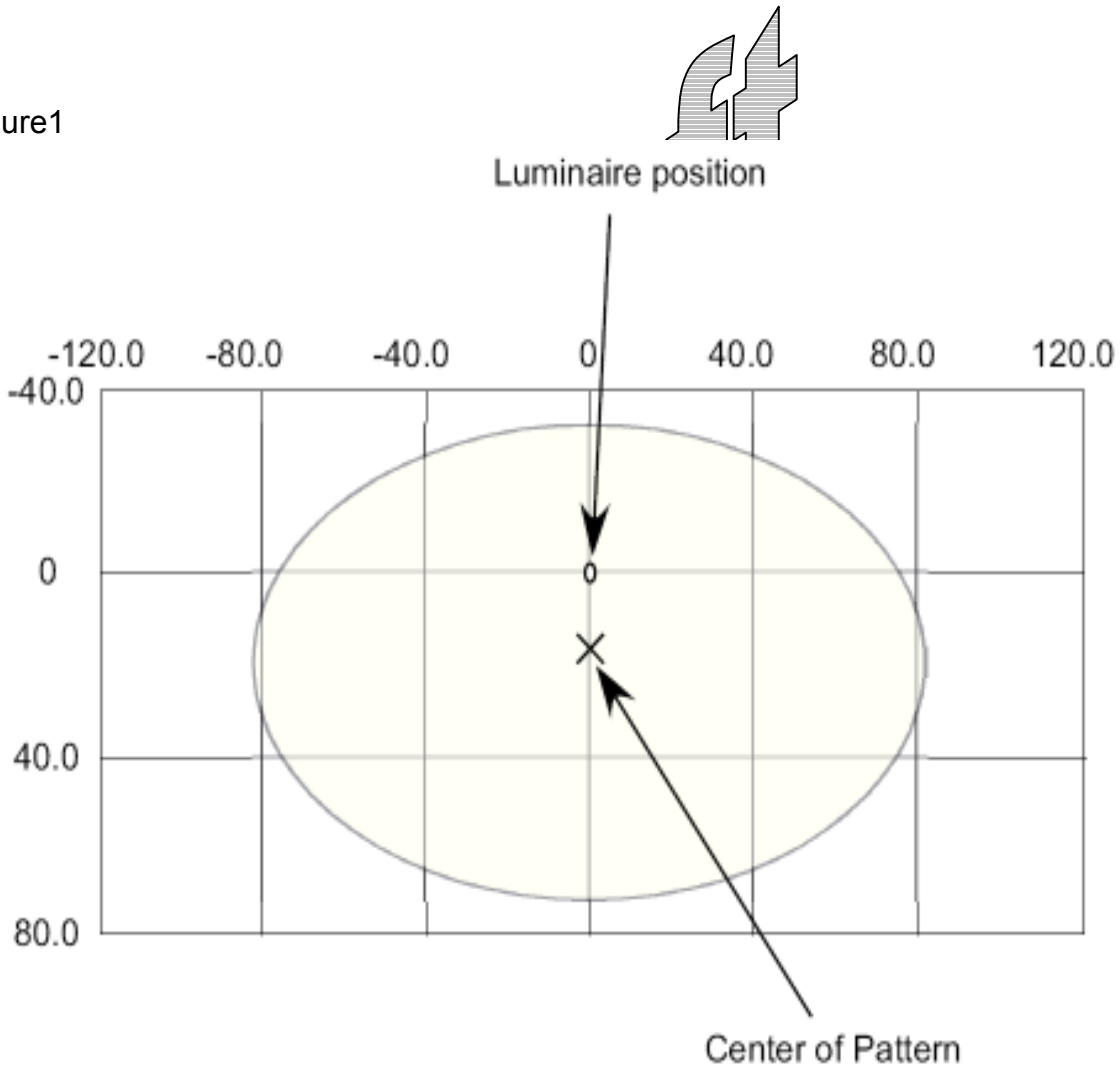
IDA CERTIFICATION: Adhere to International Dark Sky Requirements.

IESNA LM-79-08: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

IESNA LM-80-08 (Recommended): IESNA Approved Method for Measuring Lumen Maintenance of LED Lighting Sources

DOE Caliper Testing, Energy Star, UL Listed.

Figure1



Area Info
length: 164 ft
width: 105 ft
area: 13,528 sq ft